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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/739,807	12/20/2000	Joon Tae Kim	0465-0786P	4030
2292	7590	06/10/2004	EXAMINER	
BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747			TRAN, KHAI	
			ART UNIT	PAPER NUMBER
			2631	3

DATE MAILED: 06/10/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/739,807

Applicant(s)

KIM, JOON TAE

Examiner

KHAI TRAN

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2000.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4,6,13 and 18 is/are rejected.
- 7) ☒ Claim(s) 2-3,5, 7-12,14-17,19 and 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: the timing restoring part. Corrected drawing sheets, or amendment to the specification to add the reference character(s) in the description, are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claims 1-2, 5 are objected to because of the following informalities:

Appropriate correction is required.

Regarding claim 1, the term "a symbol restoring part" should be --a timing restoring part--.

Regarding claim 2, line 3, the term "saw" should be --SAW--.

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Regarding claim 5, line 6, the term "A/C converter" should be --A/D converter--.

Claim Rejections - 35 USC § 112

3. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 4, line 9, the term "the base band signal processing" lacks antecedent basis.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this

Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Han (U.S. Pat. 5,809,088).

Regarding claim 1, Han discloses a vestigial sideband (VSB) for receiving signals, as shown in Figures 1, 8-10, comprising: a digital processing part for selecting a desired channel frequency via antenna and converting the desired channel frequency to an intermediate frequency to digitalize a predetermined band of the intermediate frequency (a frequency synthesizer 8, double conversion tuner 2, SAW filter 4, IF amplifier 6, A/D converter, see col. 5, line 28

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to col. 6, line 16); a carrier wave restoring part for extracting pilot components from a signal of the digitized pass band to restore carrier waves (a carrier wave restoring part 50); a demodulator for separating components I and Q from the signal of the digitized pass band and multiplying the components with a complex carrier wave (col. 6, lines 23-45, wherein the I and Q components are separated by a phase splitter and multiplies with a complex carrier wave); a timing restoring part for restoring a transmission symbol from the signal I of the demodulated band (Figure 9 shows that the I_3 is restored in the AFC LPF 84, a second limiter 86, APC 76...).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 6, 13, 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Han (U.S. Pat. 5,809,088).

Regarding claim 6, Han also discloses the carrier wave restoring part comprising: a pilot extracting part for extracting pilot signals of the components I and Q from the signals of the digitalized pass band as shown in Figure 9, (a LPF and second phase splitter 56, a multiplier 62, a frequency/phase errors from the pilot signals I and Q of the base band (see abstract and col. 2, line 59 to col. 3,

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line 16); a loop filter as shown in Fig. 9; a numerical control oscillator (NCO 58). Han fails to disclose a use of the loop filter for converting the frequency and phase errors to DC components by filtering. However, Han suggests in col. 2, line 59 to col. 3, line 11 that an output of a limiter 26 for multiplying with output signal (Q signal; sine wave) of the second low pass filter 22 in the mixer 30 and is converted to a direct current (DC) signal. The Dc signal passes through an auto phase control low pass filter (APC-LPF) 32 and controls a voltage controlled oscillator (VCO) 34 in order to eliminate the frequency error. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to convert the frequency and phase errors to DC components in order to compensate and correct the frequency and phase errors.

Claim 13 is similar to claim 6. Therefore, claim 13 is rejected under a similar rationale.

Claim 18 is similar to claims 6 and 13. Therefore, claim 18 is rejected under a similar rationale.

Allowable Subject Matter

8. Claims 2-3, 5, 7-12, 14-17, and 19-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: Han fails to disclose the digital processing part comprising a digital matching filter for passing a band in which information from the digitalized

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signals exists; a re-sampling part for reducing error between the signals which are digitalized in the A/D converter by using a timing error of current symbols which are restored via the base band signal processing; Han also fails to disclose wherein the pilot extracting part vestigial sideband receiver modulates an IIR low pass filter of a lower degree to sine waves and cosine waves.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lee (U.S. Pat. 6,748,029) discloses an apparatus for restoring carrier wave and method therefor.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to KHAI TRAN whose telephone number is (703) 305-1876. The examiner can normally be reached on 7:00AM - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammed Ghayour can be reached on (703) 306-3034. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



KHAI TRAN
Primary Examiner
Art Unit 2631

KT
June 09, 2004